

**AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing Of Claims:**

Please amend the claims as follows:

1. (Currently Amended) A radio frequency cable network device that implements at least one gateway service, the device comprising:

at least one RF cable interface that is attachable to at least one RF cable, the at least one RF cable being at least part of an RF cable data network, the at least one RF cable at least providing downstream communications in the RF cable data network, the RF cable data network providing bi-directional data connectivity between the RF cable network device at a customer premise and a cable modem termination device;

logic configured to manage the at least one RF cable interface through a management IP address assigned by the RF cable data network to the RF cable network device;

a first customer premise data interface that is electromagnetically connectable to a first customer premise equipment (CPE) data device, the at least one RF cable interface and the first customer premise data interface capable of:

providing at least part of a communications facility that can be used in a conveyance of data between the first CPE data device and the at least one RF cable interface,

determining whether the first CPE data device comprises an allowed medium access control (MAC) address,

in response to determining that the first CPE device does not comprise an allowed MAC address, determining whether MAC address configuration is enabled, and

in response to determining that MAC address configuration is enabled,  
configuring the MAC address associated with the first CPE device to be set to an  
allowed MAC address;

network address translation (NAT) logic configured to determine security and control settings, and if the determination indicates a need for elevated security, translate an IP address in one of the packets that is destined for the first CPE data device to a NAT process IP address such that the NAT process IP address has a subnet different than the management IP address; and

forwarding logic configured to forward packets containing IP datagrams destined for the first CPE data device between the RF cable data network and the first customer premise equipment (CPE) data.

2. (Original) The RF cable network device of claim 1, wherein the RF cable data network further comprises at least one telco return path that at least provides upstream communications in the RF cable data network.

3. (Cancelled)

4. (Previously Presented) The RF cable network device of claim 1, wherein the NAT gateway service performs at least one type of NAT selected from the group consisting of: traditional NAT, basic NAT, network address-port translation (NAPT), bi-directional NAT, and twice NAT.

5-9. (Cancelled)

10. (Previously Presented) The RF cable network device of claim 1, further comprising logic configured to dynamically assign at least one customer network IP address to the at least one first CPE data device.

11. (Original) The RF cable network device of claim 10, wherein the logic configured to dynamically assign at least one customer network IP address comprises Dynamic Host Configuration Protocol (DHCP) server logic.

12. (Original) The RF cable network device of claim 10, wherein the at least one customer network IP address is from a different IP address realm than the at least one IP address for RF cable data network access.

13. (Previously Presented) The RF cable network device of claim 1, wherein the RF cable network device appears on the RF cable data network to be the same as an ethernet attached cable modem that conforms to at least one version of a DOCSIS (Data-Over-Cable Service Interface Specification) standard.

14. (Previously Presented) The RF cable network device of claim 1, wherein the RF cable network device is a set-top box (STB) that further comprises:

at least one audio/video (A/V) customer premise equipment (CPE) interface that is electromagnetically connectable to at least one customer premise audio/video (A/V) communications medium;

logic configured to select at least one audio/video (A/V) program that is communicated to the at least one RF cable interface over at least one RF cable audio/visual (A/V) network;

logic configured to receive the selected at least one A/V program from the RF cable A/V network; and

logic configured to provide the received at least one A/V program to at least one audio/video (A/V) customer premise equipment (CPE) device that is electromagnetically connectable to the at least one customer premise A/V communications medium, the at least one A/V program communicated through the at least one A/V CPE interface and over the at least one customer premise A/V communications medium.

15. (Original) The set-top box of claim 14, wherein the at least one A/V CPE device is selected from the group consisting of: a television, a video recorder, a stereo, and an audio recorder.

16. (Original) The set-top box of claim 14, wherein the set-top box appears on the RF cable data network to be the same as an ethernet attached cable modem that conforms to at least one version of a DOCSIS (Data-Over-Cable Service Interface Specification) standard.

17. (Original) The set-top box of claim 16, wherein the at least one IP address is at least one DOCSIS customer premise equipment (CPE) IP address, the set-top box further comprising logic configured to store information identifying at least one DOCSIS cable modem (CM) IP address, the at least one DOCSIS CM IP address also considered to be assigned to the set-top box, the at least one DOCSIS CPE IP address being different from the at least one DOCSIS CM IP address.

18. (Original) The set-top box of claim 14, wherein the set-top box appears on the RF cable data network to conform to at least one version of a DAVIC (Digital Audio Visual Council) cable modem standard.

19. (Original) The set-top box of claim 14, wherein at least one option card is added to a base unit of the set-top box to provide at least support to the at least one gateway service.

20. (Previously Presented) The RF cable network device of claim 1, wherein the RF cable network device is a cable modem (CM).

21. (Original) The cable modem of claim 20, wherein the cable modem (CM) appears on the RF cable data network to be the same as an Ethernet attached cable modem that conforms to at least one version of a DOCSIS (Data-Over-Cable Service Interface Specification) standard.

22. (Original) The cable modem of claim 21, wherein the at least one IP address is at least one DOCSIS customer premise equipment (CPE) IP address, the cable modem further comprising logic configured to store information identifying at least one DOCSIS cable modem (CM) IP address, the at least one DOCSIS CM IP address also considered to be assigned to the cable modem, the at least one DOCSIS CPE IP address being different from the at least one DOCSIS CM IP address.

23. (Original) The cable modem of claim 20, wherein the cable modem (CM) appears on the RF cable data network to conform to at least one version of a DAVIC (Digital Audio Visual Council) cable modem standard.

24. (Original) The cable modem of claim 20, wherein at least one option card is added to a base unit of the cable modem to provide at least support to the at least one gateway service.

25-54. (Cancelled)

55. (Currently Amended) A method of implementing at least one gateway service in a radio frequency (RF) cable network device, the method comprising the steps performed in the RF cable network device of:

providing at least one RF cable interface that is attachable to at least one RF cable, the at least one RF cable being at least part of an RF cable data network, the at least one RF cable at least providing downstream communications in the RF cable data network, the RF cable data network providing bi-directional data connectivity between the RF cable network device at a customer premise and a cable modem termination device;

storing a management IP address that is assigned by the RF cable data network to the RF cable network device and used to manage the RF cable interface;

providing a first customer premise data interface that is electromagnetically connectable to a first customer premise equipment (CPE) data device, the at least one RF cable interface and the first customer premise data interface capable of:

providing at least part of a communications facility that can be used in a conveyance of data between the first CPE data device and the at least one RF cable interface,

determining whether the first CPE data device comprises an allowed medium access control (MAC) address,

in response to determining that the first CPE data device does not comprise an allowed MAC address, determining whether MAC address configuration is enabled, and  
in response to determining that MAC address configuration is enabled,  
configuring the MAC address associated with the first CPE data device to be set to an allowed MAC address;

determine security and control settings, and if the determination indicates a need for elevated security, translating an IP address in one of the packets that is destined for the first CPE data device to a NAT process IP address such that the NAT process IP address has a subnet different than the management IP address; and

forwarding packets containing IP datagrams destined for the first CPE data device between the RF cable data network and the at least one first customer premise equipment (CPE) data.

56. (Original) The method of claim 55, wherein the RF cable data network further comprises at least one telco return path that at least provides upstream communications in the RF cable data network.

57. (Cancelled)

58. (Original) The method of claim 55, wherein the RF cable network device appears on the RF cable data network to be the same as an ethernet attached cable modem that conforms to at least one version of a DOCSIS (Data-Over-Cable Service Interface Specification) standard.

59-71. (Cancelled)

72. (Currently Amended) A radio frequency (RF) cable network device that implements at least one integrated gateway service, the device comprising:

at least one RF cable interface that is attachable to at least one RF cable, the at least one RF cable being at least part of an RF cable data network, the at least one RF cable at least providing downstream communications in the RF cable data network, the RF cable data network providing bi-directional data connectivity between the RF cable network device at a customer premise and a cable modem termination device;

at least one customer premise data interface that is electromagnetically connectable to at least one customer premise data communications medium, the at least one customer premise data communications medium further being electromagnetically connectable to at least one first customer premise equipment (CPE) data device, the at least one RF cable interface and the at least one customer premise data interface capable of:

providing at least part of a communications facility that can be used in a conveyance of data between the at least one first CPE data device and the at least one RF cable interface,

determining whether the first CPE data device comprises an allowed medium access control (MAC) address,

in response to determining that the first CPE data device does not comprise an allowed MAC address, determining whether MAC address configuration is enabled, and

in response to determining that MAC address configuration is enabled,  
configuring the MAC address associated with the first CPE data device to be set to an  
allowed MAC address;

logic configured to store information identifying at least one management IP address, the at least one management IP address being assigned to the RF cable network device;

logic configured to maintain information that provides a forward direction mapping between first upstream data and second upstream data, the first upstream data being received on the at least one customer premise data interface and being received from the at least one first CPE data device, the second upstream data being transmitted into the RF cable data network and being transmitted by the RF cable network device;

logic configured to maintain information that provides a reverse direction mapping between first downstream data and second downstream data, the first downstream data being received on the at least one RF cable interface and being received from the RF cable data network, the second downstream data being transmitted on the at least one customer premise data interface and being transmitted by the RF cable network device;

logic configured to receive at least one first medium access control (MAC) frame that is at least part of the first upstream data;

logic configured to form at least one first IP datagram at least based upon the at least one first MAC frame, at least based upon the at least one IP address, and at least based upon the forward direction mapping, the at least one first IP datagram comprising a source IP address field, the at least one IP address being placed into the source IP address field of the at least one first IP datagram;

logic configured to transmit the at least one first IP datagram that is at least part of the second upstream data;

logic configured to receive at least one second IP datagram that is at least part of the first downstream data, the at least one second IP datagram comprising a destination IP address field that contains the at least one IP address;

logic configured to form at least one second medium access control (MAC) frame at least based upon the at least one second IP datagram, at least based upon the at least one IP address, and at least based upon the reverse direction mapping;

logic configured to transmit the at least one second MAC frame that is at least part of the second downstream data; and

logic configured to determine security and control settings, and if the determination indicates a need for elevated security, translate an IP address in one of the packets that is destined for the at least one CPE data device to a NAT process IP address such that the NAT process IP address has a subnet different than the management IP address.

73. (Original) The RF cable network device of claim 72, wherein the RF cable data network further comprises at least one telco return path that at least provides upstream communications in the RF cable data network.

74. (Original) The RF cable network device of claim 72, wherein the at least one first MAC frame comprises a third IP datagram, wherein the at least one second MAC frame comprises a fourth IP datagram, and wherein the RF cable network device is configured to perform network address translation (NAT), NAT being a gateway service that translates information in IP datagrams.

75. (Original) The RF cable network device of claim 74, wherein the NAT performed is at least one type of NAT selected from the group consisting of: traditional NAT, basic NAT, network address-port translation (NAPT), bi-directional NAT, and twice NAT.

76. (Original) The RF cable network device of claim 74 being further configured to perform at least one application layer gateway (ALG) service.

77. (Original) The RF cable network device of claim 76, wherein the application layer gateway service provides gateway services to at least one version of at least one TCP/IP (transmission control protocol/internet protocol) suite application protocol that is selected from the group of consisting of: telnet, rlogin, file transfer protocol (FTP), trivial file transfer protocol (TFTP), network file system (NFS), electronic mail, simple mail transfer protocol (SMTP), post office protocol (POP), internet message access protocol (IMAP), multipurpose internet mail extensions (MIME), hyper-text transfer protocol (HTTP), real-time transport protocol (RTP), and simple network management protocol (SNMP).

78. (Original) The RF cable network device of claim 74, wherein the at least one customer premise communications medium is further electromagnetically connectable to at least one second customer premise equipment (CPE) data device that has IP connectivity through the RF cable network device to the RF cable data network without utilizing NAT.

79. (Original) The RF cable network device of claim 74, wherein the at least one customer premise communications medium is further electromagnetically connectable to at least one second customer premise equipment (CPE) data device, the RF cable network device further comprising logic configured to block IP connectivity between the at least one second customer premise equipment (CPE) data device and the RF cable data network.

80. (Original) The RF cable network device of claim 74, wherein the RF cable network device is a set-top box (STB) that further comprises:  
at least one audio/video (A/V) customer premise equipment (CPE) interface that is electromagnetically connectable to at least one customer premise audio/video (A/V) communications medium;

logic configured to select at least one audio/video (A/V) program that is communicated to the at least one RF cable interface over at least one RF cable audio/visual (A/V) network;

logic configured to receive the selected at least one A/V program from the RF cable A/V network; and

logic configured to provide the received at least one A/V program to at least one audio/video (A/V) customer premise equipment (CPE) device that is electromagnetically connectable to the at least one customer premise A/V communications medium, the at least one A/V program in communicated through the at least one A/V CPE interface and over the at least one customer premise A/V communications medium.

81. (Original) The set-top box of claim 80, wherein the at least one A/V CPE device is selected from the group consisting of: a television, a video recorder, a stereo, and an audio recorder.

82. (Original) The set-top box of claim 80, wherein the set-top box appears on the RF cable data network to be the same as an ethernet attached cable modem that conforms to at least one version of a DOCSIS (Data-Over-Cable Service Interface Specification) standard.

83. (Original) The set-top box of claim 82, wherein the at least one IP address is at least one DOCSIS customer premise equipment (CPE) IP address, the set-top box further comprising logic configured to store information identifying at least one DOCSIS cable modem (CM) IP address, the at least one DOCSIS CM IP address also considered to be assigned to the set-top box, the at least one DOCSIS CPE IP address being different from the at least one DOCSIS CM IP address.

84. (Original) The set-top box of claim 80, wherein the set-top box appears on the RF cable data network to conform to at least one version of a DAVIC (Digital Audio Visual Council) cable modem standard.

85. (Original) The set-top box of claim 80, wherein at least one option card is added to a base unit of the set-top box to provide at least support for the performance of NAT by the set-top box.

86. (Original) The RF cable network device of claim 74, wherein the RF cable network device is a cable modem (CM).

87. (Original) The cable modem of claim 86, wherein the cable modem (CM) appears on the RF cable data network to be the same as an ethernet attached cable modem that conforms to at least one version of a DOCSIS (Data-Over-Cable Service Interface Specification) standard.

88. (Original) The cable modem of claim 87, wherein the at least one IP address is at least one DOCSIS customer premise equipment (CPE) IP address, the cable modem further comprising logic configured to store information identifying at least one DOCSIS cable modem (CM) IP address, the at least one DOCSIS CM IP address also considered to be assigned to the cable modem, the at least one DOCSIS CPE IP address being different from the at least one DOCSIS CM IP address.

89. (Original) The cable modem of claim 86, wherein the cable modem (CM) appears on the RF cable data network to conform to at least one version of a DAVIC (Digital Audio Visual Council) cable modem standard.

90. (Original) The cable modem of claim 86, wherein at least one option card is added to a base unit of the cable modem to provide at least support for the performance of NAT by the cable modem.

91. (Original) The RF cable network device of claim 74, wherein the at least one customer premise data communications medium is at least one wired customer premise data communications medium.

92. (Original) The RF cable network device of claim 91, wherein at least one option card is added to a base unit of the RF cable network device to provide at least support for the at least one wired customer premise data communications medium.

93. (Original) The RF cable network device of claim 91, wherein the at least one wired customer premise data communications medium is at least one communications medium that at least utilizes time-division multiplexing.

94. (Original) The RF cable network device of claim 93, wherein the at least one wired customer premise data communications medium is at least one selection from the group consisting of: RS-232, RS-449, V.35, universal serial bus (USB), ethernet, and token ring.

95. (Original) The RF cable network device of claim 93, wherein the RF cable network device is a set-top box (STB) that further comprises:

at least one audio/video (A/V) customer premise equipment (CPE) interface that is electromagnetically connectable to at least one customer premise audio/video (A/V) communications medium;

logic configured to select at least one audio/video (A/V) program that is communicated to the at least one RF cable interface over at least one RF cable audio/visual (A/V) network;

logic configured to receive the selected at least one A/V program from the RF cable A/V network; and

logic configured to provide the received at least one A/V program to at least one audio/video (A/V) customer premise equipment (CPE) device that is electromagnetically connectable to the at least one customer premise A/V communications medium, the at least one

A/V program communicated through the at least one A/V CPE interface and over the at least one customer premise A/V communications medium.

96. (Original) The set-top box of claim 95, wherein the at least one A/V CPE device is selected from the group consisting of: a television, a video recorder, a stereo, and an audio recorder.

97. (Original) The set-top box of claim 95, wherein the set-top box appears on the RF cable data network to be the same as an ethernet attached cable modem that conforms to at least one version of a DOCSIS (Data-Over-Cable Service Interface Specification) standard.

98. (Original) The set-top box of claim 97, wherein the at least one IP address is at least one DOCSIS customer premise equipment (CPE) IP address, the set-top box further comprising logic configured to store information identifying at least one DOCSIS cable modem (CM) IP address, the at least one DOCSIS CM IP address also considered to be assigned to the set-top box, the at least one DOCSIS CPE IP address being different from the at least one DOCSIS CM IP address.

99. (Original) The set-top box of claim 95, wherein the set-top box appears on the RF cable data network to conform to at least one version of a DAVIC (Digital Audio Visual Council) cable modem standard.

100. (Original) The RF cable network device of claim 93, wherein the RF cable network device is a cable modem (CM).

101. (Original) The cable modem of claim 100, wherein the cable modem (CM) appears on the RF cable data network to be the same as an ethernet attached cable modem that conforms to at least one version of a DOCSIS (Data-Over-Cable Service Interface Specification) standard.

102. (Original) The cable modem of claim 101, wherein the at least one IP address is at least one DOCSIS customer premise equipment (CPE) IP address, the cable modem further comprising logic configured to store information identifying at least one DOCSIS cable modem (CM) IP address, the at least one DOCSIS CM IP address also considered to be assigned to the cable modem, the at least one DOCSIS CPE IP address being different from the at least one DOCSIS CM IP address.

103. (Original) The cable modem of claim 100, wherein the cable modem (CM) appears on the RF cable data network to conform to at least one version of a DAVIC (Digital Audio Visual Council) cable modem standard.

104. (Original) The RF cable network device of claim 91, wherein the at least one wired customer premise data communications medium at least utilizes frequency-division multiplexing.

105. (Original) The RF cable network device of claim 104, wherein the at least one wired customer premise data communications medium is telephone wiring at the customer premise, and wherein IP datagrams are frequency-division multiplexed with a signal for carrying an analog POTS voice-frequency band signal.

106. (Original) The RF cable network device of claim 105, wherein the at least one wired customer premise data communications medium conforms to at least one version of a Home Phoneline Networking Alliance (HPNA) standard.

107. (Original) The RF cable network device of claim 105, wherein the RF cable network device is a set-top box (STB) that further comprises:

at least one audio/video (A/V) customer premise equipment (CPE) interface that is electromagnetically connectable to at least one customer premise audio/video (A/V) communications medium;

logic configured to select at least one audio/video (A/V) program that is communicated to the at least one RF cable interface over at least one RF cable audio/visual (A/V) network;

logic configured to receive the selected at least one A/V program from the RF cable A/V network; and

logic configured to provide the received at least one A/V program to at least one audio/video (A/V) customer premise equipment (CPE) device that is electromagnetically connectable to the at least one customer premise A/V communications medium, the at least one A/V program communicated through the at least one A/V CPE interface and over the at least one customer premise A/V communications medium.

108. (Original) The set-top box of claim 107, wherein the at least one A/V CPE device is selected from the group consisting of: a television, a video recorder, a stereo, and an audio recorder.

109. (Original) The set-top box of claim 107, wherein the set-top box appears on the RF cable data network to be the same as an ethernet attached cable modem that conforms to at least one version of a DOCSIS (Data-Over-Cable Service Interface Specification) standard.

110. (Original) The set-top box of claim 109, wherein the at least one IP address is at least one DOCSIS customer premise equipment (CPE) IP address, the set-top box further comprising logic configured to store information identifying at least one DOCSIS cable modem (CM) IP address, the at least one DOCSIS CM IP address also considered to be assigned to the set-top box, the at least one DOCSIS CPE IP address being different from the at least one DOCSIS CM IP address.

111. (Original) The set-top box of claim 107, wherein the set-top box appears on the RF cable data network to conform to at least one version of a DAVIC (Digital Audio Visual Council) cable modem standard.

112. (Original) The RF cable network device of claim 105, wherein the RF cable network device is a cable modem (CM).

113. (Original) The cable modem of claim 112, wherein the cable modem (CM) appears on the RF cable data network to be the same as an ethernet attached cable modem that conforms to at least one version of a DOCSIS (Data-Over-Cable Service Interface Specification) standard.

114. (Original) The cable modem of claim 113, wherein the at least one IP address is at least one DOCSIS customer premise equipment (CPE) IP address, the cable modem further comprising logic configured to store information identifying at least one DOCSIS cable modem (CM) IP address, the at least one DOCSIS CM IP address also considered to be assigned to the cable modem, the at least one DOCSIS CPE IP address being different from the at least one DOCSIS CM IP address.

115. (Original) The cable modem of claim 112, wherein the cable modem (CM) appears on the RF cable data network to conform to at least one version of a DAVIC (Digital Audio Visual Council) cable modem standard.

116. (Original) The RF cable network device of claim 104, wherein the at least one wired customer premise data communications medium is electrical power wiring at the customer premise, and wherein IP datagrams are frequency-division multiplexed with a signal for carrying electrical power to appliances at the customer premise.

117. (Original) The RF cable network device of claim 116, wherein the at least one wired customer premise data communications medium conforms to at least one version of at least one protocol selected from the group consisting of: X.10, CEBus, and PowerPacket.

118. (Original) The RF cable network device of claim 116, wherein the RF cable network device is a set-top box (STB) that further comprises:

at least one audio/video (A/V) customer premise equipment (CPE) interface that is electromagnetically connectable to at least one customer premise audio/video (A/V) communications medium;

logic configured to select at least one audio/video (A/V) program that is communicated to the at least one RF cable interface over at least one RF cable audio/visual (A/V) network;

logic configured to receive the selected at least one A/V program from the RF cable A/V network; and

logic configured to provide the received at least one A/V program to at least one audio/video (A/V) customer premise equipment (CPE) device that is electromagnetically connectable to the at least one customer premise A/V communications medium, the at least one A/V program communicated through the at least one A/V CPE interface and over the at least one customer premise A/V communications medium.

119. (Original) The set-top box of claim 118, wherein the at least one A/V CPE device is selected from the group consisting of: a television, a video recorder, a stereo, and an audio recorder.

120. (Original) The set-top box of claim 118, wherein the set-top box appears on the RF cable data network to be the same as an ethernet attached cable modem that conforms to at least one version of a DOCSIS (Data-Over-Cable Service Interface Specification) standard.

121. (Original) The set-top box of claim 120, wherein the at least one IP address is at least one DOCSIS customer premise equipment (CPE) IP address, the set-top box further comprising logic configured to store information identifying at least one DOCSIS cable modem (CM) IP address, the at least one DOCSIS CM IP address also considered to be assigned to the set-top box, the at least one DOCSIS CPE IP address being different from the at least one DOCSIS CM IP address.

122. (Original) The set-top box of claim 118, wherein the set-top box appears on the RF cable data network to conform to at least one version of a DAVIC (Digital Audio Visual Council) cable modem standard.

123. (Original) The RF cable network device of claim 116, wherein the RF cable network device is a cable modem (CM).

124. (Original) The cable modem of claim 123, wherein the cable modem (CM) appears on the RF cable data network to be the same as an ethernet attached cable modem that conforms to at least one version of a DOCSIS (Data-Over-Cable Service Interface Specification) standard.

125. (Original) The cable modem of claim 124, wherein the at least one IP address is at least one DOCSIS customer premise equipment (CPE) IP address, the cable modem further comprising logic configured to store information identifying at least one DOCSIS cable modem (CM) IP address, the at least one DOCSIS CM IP address also considered to be assigned to the cable modem, the at least one DOCSIS CPE IP address being different from the at least one DOCSIS CM IP address.

126. (Original) The cable modem of claim 123, wherein the cable modem (CM) appears on the RF cable data network to conform to at least one version of a DAVIC (Digital Audio Visual Council) cable modem standard.

127. (Original) The RF cable network device of claim 74, wherein the at least one customer premise data communications medium is at least one wireless customer premise data communications medium.

128. (Original) The RF cable network device of claim 127, wherein at least one option card is added to a base unit of the RF cable network device to provide at least support for the at least one wireless customer premise data communications medium.

129. (Original) The RF cable network device of claim 128, wherein the at least one wireless customer premise data communications medium conforms to at least one version of at least one protocol selected from the group consisting of: Bluetooth, IEEE 802.11a, IEEE 802.11b, and HomeRF.

130. (Original) The RF cable network device of claim 127, wherein the RF cable network device is a set-top box (STB) that further comprises:

at least one audio/video (A/V) customer premise equipment (CPE) interface that is electromagnetically connectable to at least one customer premise audio/video (A/V) communications medium;

logic configured to select at least one audio/video (A/V) program that is communicated to the at least one RF cable interface over at least one RF cable audio/visual (A/V) network;

logic configured to receive the selected at least one A/V program from the RF cable A/V network; and

logic configured to provide the received at least one A/V program to at least one audio/video (A/V) customer premise equipment (CPE) device that is electromagnetically

connectable to the at least one customer premise A/V communications medium, the at least one A/V program communicated through the at least one A/V CPE interface and over the at least one customer premise A/V communications medium.

131. (Original) The set-top box of claim 130, wherein the at least one A/V CPE device is selected from the group consisting of: a television, a video recorder, a stereo, and an audio recorder.

132. (Original) The set-top box of claim 130, wherein the set-top box appears on the RF cable data network to be the same as an ethernet attached cable modem that conforms to at least one version of a DOCSIS (Data-Over-Cable Service Interface Specification) standard.

133. (Original) The set-top box of claim 132, wherein the at least one IP address is at least one DOCSIS customer premise equipment (CPE) IP address, the set-top box further comprising logic configured to store information identifying at least one DOCSIS cable modem (CM) IP address, the at least one DOCSIS CM IP address also considered to be assigned to the set-top box, the at least one DOCSIS CPE IP address being different from the at least one DOCSIS CM IP address.

134. (Original) The set-top box of claim 132, wherein the set-top box appears on the RF cable data network to conform to at least one version of a DAVIC (Digital Audio Visual Council) cable modem standard.

135. (Original) The RF cable network device of claim 127, wherein the RF cable network device is a cable modem (CM).

136. (Original) The cable modem of claim 135, wherein the cable modem (CM) appears on the RF cable data network to be the same as an ethernet attached cable modem

that conforms to at least one version of a DOCSIS (Data-Over-Cable Service Interface Specification) standard.

137. (Original) The cable modem of claim 136, wherein the at least one IP address is at least one DOCSIS customer premise equipment (CPE) IP address, the cable modem further comprising logic configured to store information identifying at least one DOCSIS cable modem (CM) IP address, the at least one DOCSIS CM IP address also considered to be assigned to the cable modem, the at least one DOCSIS CPE IP address being different from the at least one DOCSIS CM IP address.

138. (Original) The cable modem of claim 135, wherein the cable modem (CM) appears on the RF cable data network to conform to at least one version of a DAVIC (Digital Audio Visual Council) cable modem standard.

139. (Original) The RF cable network device of claim 74, wherein the RF cable network device further comprises logic configured to implement a Dynamic Host Configuration Protocol (DHCP) client that dynamically obtains the assignment of the least one IP address.

140. (Original) The RF cable network device of claim 139, wherein the RF cable network device is a set-top box (STB) that further comprises:

least one audio/video (A/V) customer premise equipment (CPE) interface that is electromagnetically connectable to at least one customer premise audio/video (A/V) communications medium;

logic configured to select at least one audio/video (A/V) program that is communicated to the at least one RF cable interface over at least one RF cable audio/visual (A/V) network;

logic configured to receive the selected at least one A/V program from the RF cable A/V network; and

logic configured to provide the received at least one A/V program to at least one audio/video (A/V) customer premise equipment (CPE) device that is electromagnetically connectable to the at least one customer premise A/V communications medium, the at least one A/V program communicated through the at least one A/V CPE interface and over the at least one customer premise A/V communications medium.

141. (Original) The set-top box of claim 140, wherein the at least one A/V CPE device is selected from the group consisting of: a television, a video recorder, a stereo, and an audio recorder.

142. (Original) The set-top box of claim 140, wherein the set-top box appears on the RF cable data network to be the same as an ethernet attached cable modem that conforms to at least one version of a DOCSIS (Data-Over-Cable Service Interface Specification) standard.

143. (Original) The set-top box of claim 142, wherein the at least one IP address is at least one DOCSIS customer premise equipment (CPE) IP address, the set-top box further comprising logic configured to store information identifying at least one DOCSIS cable modem (CM) IP address, the at least one DOCSIS CM IP address also considered to be assigned to the set-top box, the at least one DOCSIS CPE IP address being different from the at least one DOCSIS CM IP address.

144. (Original) The set-top box of claim 140, wherein the set-top box appears on the RF cable data network to conform to at least one version of a DAVIC (Digital Audio Visual Council) cable modem standard.

145. (Original) The RF cable network device of claim 139, wherein the RF cable network device is a cable modem (CM).

146. (Original) The cable modem of claim 145, wherein the cable modem (CM) appears on the RF cable data network to be the same as an ethernet attached cable modem that conforms to at least one version of a DOCSIS (Data-Over-Cable Service Interface Specification) standard.

147. (Original) The cable modem of claim 146, wherein the at least one IP address is at least one DOCSIS customer premise equipment (CPE) IP address, the cable modem further comprising logic configured to store information identifying at least one DOCSIS cable modem (CM) IP address, the at least one DOCSIS CM IP address also considered to be assigned to the cable modem, the at least one DOCSIS CPE IP address being different from the at least one DOCSIS CM IP address.

148. (Original) The cable modem of claim 145, wherein the cable modem (CM) appears on the RF cable data network to conform to at least one version of a DAVIC (Digital Audio Visual Council) cable modem standard.

149. (Original) The RF cable network device of claim 74, wherein the RF cable network device further comprises logic configured to perform as a Dynamic Host Configuration Protocol (DHCP) server that assigns at least one customer network IP address to the at least one first CPE data device connected to the at least one customer premise data communications medium.

150. (Original) The RF cable network device of claim 149, wherein the at least one customer network IP address is from a different IP address realm than the at least one IP address for RF cable data network access.

151. (Original) The RF cable network device of claim 149, wherein the RF cable network device is a set-top box (STB) that further comprises:

at least one audio/video (A/V) customer premise equipment (CPE) interface that is electromagnetically connectable to at least one customer premise audio/video (A/V) communications medium;

logic configured to select at least one audio/video (A/V) program that is communicated to the at least one RF cable interface over at least one RF cable audio/visual (A/V) network;

logic configured to receive the selected at least one A/V program from the RF cable A/V network; and

logic configured to provide the received at least one A/V program to at least one audio/video (A/V) customer premise equipment (CPE) device that is electromagnetically connectable to the at least one customer premise A/V communications medium, the at least one A/V program communicated through the at least one A/V CPE interface and over the at least one customer premise A/V communications medium.

152. (Original) The set-top box of claim 151, wherein the at least one A/V CPE device is selected from the group consisting of: a television, a video recorder, a stereo, and an audio recorder.

153. (Original) The set-top box of claim 151, wherein the set-top box appears on the RF cable data network to be the same as an ethernet attached cable modem that conforms to at least one version of a DOCSIS (Data-Over-Cable Service Interface Specification) standard.

154. (Original) The set-top box of claim 153, wherein the at least one IP address is at least one DOCSIS customer premise equipment (CPE) IP address, the set-top box further comprising logic configured to store information identifying at least one DOCSIS cable modem (CM) IP address, the at least one DOCSIS CM IP address also considered to be assigned to the set-top box, the at least one DOCSIS CPE IP address being different from the at least one DOCSIS CM IP address.

155. (Original) The set-top box of claim 151, wherein the set-top box appears on the RF cable data network to conform to at least one version of a DAVIC (Digital Audio Visual Council) cable modem standard.

156. (Original) The RF cable network device of claim 149, wherein the RF cable network device is a cable modem (CM).

157. (Original) The cable modem of claim 156, wherein the cable modem (CM) appears on the RF cable data network to be the same as an ethernet attached cable modem that conforms to at least one version of a DOCSIS (Data-Over-Cable Service Interface Specification) standard.

158. (Original) The cable modem of claim 157, wherein the at least one IP address is at least one DOCSIS customer premise equipment (CPE) IP address, the cable modem further comprising logic configured to store information identifying at least one DOCSIS cable modem (CM) IP address, the at least one DOCSIS CM IP address also considered to be assigned to the cable modem, the at least one DOCSIS CPE IP address being different from the at least one DOCSIS CM IP address.

159. (Original) The cable modem of claim 156, wherein the cable modem (CM) appears on the RF cable data network to conform to at least one version of a DAVIC (Digital Audio Visual Council) cable modem standard.

160. (Original) The RF cable network device of claim 72, wherein the RF cable network device is configured to perform the at least one integrated gateway service, the at least one integrated gateway service being selected from the group consisting of: firewall and proxy.

161. (Original) The RF cable network device of claim 160, wherein at least one option card is added to a base unit of the RF cable network device to provide at least support for the at least one integrated gateway service.

162. (Original) The RF cable network device of claim 160, wherein the RF cable network device is a set-top box (STB) that further comprises:

at least one audio/video (A/V) customer premise equipment (CPE) interface that is electromagnetically connectable to at least one customer premise audio/video (A/V) communications medium;

logic configured to select at least one audio/video (A/V) program that is communicated to the at least one RF cable interface over at least one RF cable audio/visual (A/V) network;

logic configured to receive the selected at least one A/V program from the RF cable A/V network; and

logic configured to provide the received at least one A/V program to at least one audio/video (A/V) customer premise equipment (CPE) device that is electromagnetically connectable to the at least one customer premise A/V communications medium, the at least one A/V program communicated through the at least one A/V CPE interface and over the at least one customer premise A/V communications medium.

163. (Original) The set-top box of claim 162, wherein the at least one A/V CPE device is selected from the group consisting of: a television, a video recorder, a stereo, and an audio recorder.

164. (Original) The set-top box of claim 162, wherein the set-top box appears on the RF cable data network to be the same as an ethernet attached cable modem that conforms to at least one version of a DOCSIS (Data-Over-Cable Service Interface Specification) standard.

165. (Original) The set-top box of claim 164, wherein the at least one IP address is at least one DOCSIS customer premise equipment (CPE) IP address, the set-top box further comprising logic configured to store information identifying at least one DOCSIS cable modem (CM) IP address, the at least one DOCSIS CM IP address also considered to be assigned to the set-top box, the at least one DOCSIS CPE IP address being different from the at least one DOCSIS CM IP address.

166. (Original) The set-top box of claim 162, wherein the set-top box appears on the RF cable data network to conform to at least one version of a DAVIC (Digital Audio Visual Council) cable modem standard.

167. (Original) The RF cable network device of claim 160, wherein the RF cable network device is a cable modem (CM).

168. (Original) The cable modem of claim 167, wherein the cable modem (CM) appears on the RF cable data network to be the same as an ethernet attached cable modem that conforms to at least one version of a DOCSIS (Data-Over-Cable Service Interface Specification) standard.

169. (Original) The cable modem of claim 168, wherein the at least one IP address is at least one DOCSIS customer premise equipment (CPE) IP address, the cable modem further comprising logic configured to store information identifying at least one DOCSIS cable modem (CM) IP address, the at least one DOCSIS CM IP address also considered to be assigned to the cable modem, the at least one DOCSIS CPE IP address being different from the at least one DOCSIS CM IP address.

170. (Original) The cable modem of claim 167, wherein the cable modem (CM) appears on the RF cable data network to conform to at least one version of a DAVIC (Digital Audio Visual Council) cable modem standard.

171. (Original) The RF cable network device of claim 160, wherein the firewall gateway service performs at least one of the firewall types selected from the group consisting of: packet-filtering, circuit-level gateway, and application layer gateway.

172. (Original) The RF cable network device of claim 171, wherein the packet-filtering firewall type performs state-based packet-filtering.

173. (Original) The RF cable network device of claim 160, wherein the at least one integrated gateway service performs at least one of the gateway service types selected from the group consisting of: circuit-level gateway and application layer gateway.

174. (Original) The RF cable network device of claim 173, wherein the at least one integrated gateway service type operates on IP datagrams.

175. (Original) The RF cable network device of claim 173, wherein the at least one integrated gateway service type converts network layer protocols.

176. (Original) The RF cable network device of claim 173, wherein the at least one integrated gateway service type converts network protocols between the network layer protocols of IPX (Internet Packet eXchange) and IP (Internet Protocol).

177. (Original) The RF cable network device of claim 160, wherein the RF cable network device further comprises logic configured to perform as a Dynamic Host Configuration Protocol (DHCP) server that assigns at least one customer network IP address to the at least

one first CPE data device connected to the at least one customer premise data communications medium.

178. (Original) The RF cable network device of claim 177, wherein the RF cable network device is a set-top box (STB) that further comprises:

at least one audio/video (A/V) customer premise equipment (CPE) interface that is electromagnetically connectable to at least one customer premise audio/video (A/V) communications medium;

logic configured to select at least one audio/video (A/V) program that is communicated to the at least one RF cable interface over at least one RF cable audio/visual (A/V) network;

logic configured to receive the selected at least one A/V program from the RF cable A/V network; and

logic configured to provide the received at least one A/V program to at least one audio/video (A/V) customer premise equipment (CPE) device that is electromagnetically connectable to the at least one customer premise A/V communications medium, the at least one A/V program communicated through the at least one A/V CPE interface and over the at least one customer premise A/V communications medium.

179. (Original) The set-top box of claim 178, wherein the at least one A/V CPE device is selected from the group consisting of: a television, a video recorder, a stereo, and an audio recorder.

180. (Original) The set-top box of claim 178, wherein the set-top box appears on the RF cable data network to be the same as an ethernet attached cable modem that conforms to at least one version of a DOCSIS (Data-Over-Cable Service Interface Specification) standard.

181. (Original) The set-top box of claim 180, wherein the at least one IP address is at least one DOCSIS customer premise equipment (CPE) IP address, the set-top box further

comprising logic configured to store information identifying at least one DOCSIS cable modem (CM) IP address, the at least one DOCSIS CM IP address also considered to be assigned to the set-top box, the at least one DOCSIS CPE IP address being different from the at least one DOCSIS CM IP address.

182. (Original) The set-top box of claim 178, wherein the set-top box appears on the RF cable data network to conform to at least one version of a DAVIC (Digital Audio Visual Council) cable modem standard.

183. (Original) The RF cable network device of claim 177, wherein the RF cable network device is a cable modem (CM).

184. (Original) The cable modem of claim 183, wherein the cable modem (CM) appears on the RF cable data network to be the same as an ethernet attached cable modem that conforms to at least one version of a DOCSIS (Data-Over-Cable Service Interface Specification) standard.

185. (Original) The cable modem of claim 184, wherein the at least one IP address is at least one DOCSIS customer premise equipment (CPE) IP address, the cable modem further comprising logic configured to store information identifying at least one DOCSIS cable modem (CM) IP address, the at least one DOCSIS CM IP address also considered to be assigned to the cable modem, the at least one DOCSIS CPE IP address being different from the at least one DOCSIS CM IP address.

186. (Original) The cable modem of claim 183, wherein the cable modem (CM) appears on the RF cable data network to conform to at least one version of a DAVIC (Digital Audio Visual Council) cable modem standard.

187. (Original) The RF cable network device of claim 72, wherein the RF cable network device is configured to perform the at least one integrated gateway service, the at least one integrated gateway service being selected from the group consisting of: tunneling and virtual private networking (VPN).

188. (Original) The RF cable network device of claim 187, wherein at least one option card is added to a base unit of the RF cable network device to provide at least support for the at least one integrated gateway service.

189. (Original) The RF cable network device of claim 187, wherein the RF cable network device is a set-top box (STB) that further comprises:

at least one audio/video (A/V) customer premise equipment (CPE) interface that is electromagnetically connectable to at least one customer premise audio/video (A/V) communications medium;

logic configured to select at least one audio/video (A/V) program that is communicated to the at least one RF cable interface over at least one RF cable audio/visual (A/V) network;

logic configured to receive the selected at least one A/V program from the RF cable A/V network; and

logic configured to provide the received at least one A/V program to at least one audio/video (A/V) customer premise equipment (CPE) device that is electromagnetically connectable to the at least one customer premise A/V communications medium, the at least one A/V program communicated through the at least one A/V CPE interface and over the at least one customer premise A/V communications medium.

190. (Original) The set-top box of claim 189, wherein the at least one A/V CPE device is selected from the group consisting of: a television, a video recorder, a stereo, and an audio recorder.

191. (Original) The set-top box of claim 189, wherein the set-top box appears on the RF cable data network to be the same as an ethernet attached cable modem that conforms to at least one version of a DOCSIS (Data-Over-Cable Service Interface Specification) standard.

192. (Original) The set-top box of claim 191, wherein the at least one IP address is at least one DOCSIS customer premise equipment (CPE) IP address, the set-top box further comprising logic configured to store information identifying at least one DOCSIS cable modem (CM) IP address, the at least one DOCSIS CM IP address also considered to be assigned to the set-top box, the at least one DOCSIS CPE IP address being different from the at least one DOCSIS CM IP address.

193. (Original) The set-top box of claim 189, wherein the set-top box appears on the RF cable data network to conform to at least one version of a DAVIC (Digital Audio Visual Council) cable modem standard.

194. (Original) The RF cable network device of claim 187, wherein the RF cable network device is a cable modem (CM).

195. (Previously Presented) The cable modem of claim 194, wherein the cable modem (CM) appears on the RF cable data network to be the same as an ethernet attached cable modem that conforms to at least one version of a DOCSIS (Data-Over-Cable Service Interface Specification) standard.

196. (Previously Presented) The cable modem of claim 194, wherein the at least one IP address is at least one DOCSIS customer premise equipment (CPE) IP address, the cable modem further comprising logic configured to store information identifying at least one DOCSIS cable modem (CM) IP address, the at least one DOCSIS CM IP address also

considered to be assigned to the cable modem, the at least one DOCSIS CPE IP address being different from the at least one DOCSIS CM IP address.

197. (Original) The cable modem of claim 194, wherein the cable modem (CM) appears on the RF cable data network to conform to at least one version of a DAVIC (Digital Audio Visual Council) cable modem standard.

198. (Original) The RF cable network device of claim 187, wherein the at least one integrated service communicates encapsulated information in IP datagrams over the RF cable network.

199. (Original) The RF cable network device of claim 198, wherein the at least one integrated service at least one service utilizing at least one version of at least one protocol selected from the group consisting of: generic routing encapsulation (GRE), Ascend tunnel management protocol (ATMP), point-to-point tunneling protocol (PPTP), layer two forwarding (L2F) protocol, layer two tunneling protocol (L2TP), IP Security (IPSec), and multi-protocol label switching (MPLS).

200. (Original) The RF cable network device of claim 187, wherein the RF cable network device further comprises logic configured to perform as a Dynamic Host Configuration Protocol (DHCP) server that assigns at least one customer network IP address to the at least one first CPE data device connected to the at least one customer premise data communications medium.

201. (Original) The RF cable network device of claim 200, wherein the RF cable network device is a set-top box (STB) that further comprises:

at least one audio/video (A/V) customer premise equipment (CPE) interface that is electromagnetically connectable to at least one customer premise audio/video (A/V) communications medium;

logic configured to select at least one audio/video (A/V) program that is communicated to the at least one RF cable interface over at least one RF cable audio/visual (A/V) network;

a logic configured to receive the selected at least one A/V program from the RF cable A/V network; and

logic configured to provide the received at least one A/V program to at least one audio/video (A/V) customer premise equipment (CPE) device that is electromagnetically connectable to the at least one customer premise A/V communications medium, the at least one A/V program communicated through the at least one A/V CPE interface and over the at least one customer premise A/V communications medium.

202. (Original) The set-top box of claim 201, wherein the at least one A/V CPE device is selected from the group consisting of: a television, a video recorder, a stereo, and an audio recorder.

203. (Original) The set-top box of claim 201, wherein the set-top box appears on the RF cable data network to be the same as an ethernet attached cable modem that conforms to at least one version of a DOCSIS (Data-Over-Cable Service Interface Specification) standard.

204. (Original) The set-top box of claim 203, wherein the at least one IP address is at least one DOCSIS customer premise equipment (CPE) IP address, the set-top box further comprising logic configured to store information identifying at least one DOCSIS cable modem (CM) IP address, the at least one DOCSIS CM IP address also considered to be assigned to the set-top box, the at least one DOCSIS CPE IP address being different from the at least one DOCSIS CM IP address.

205. (Original) The set-top box of claim 201, wherein the set-top box appears on the RF cable data network to conform to at least one version of a DAVIC (Digital Audio Visual Council) cable modem standard.

206. (Original) The RF cable network device of claim 200, wherein the RF cable network device is a cable modem (CM).

207. (Original) The cable modem of claim 206, wherein the cable modem (CM) appears on the RF cable data network to be the same as an ethernet attached cable modem that conforms to at least one version of a DOCSIS (Data-Over-Cable Service Interface Specification) standard.

208. (Original) The cable modem of claim 207, wherein the at least one IP address is at least one DOCSIS customer premise equipment (CPE) IP address, the cable modem further comprising logic configured to store information identifying at least one DOCSIS cable modem (CM) IP address, the at least one DOCSIS CM IP address also considered to be assigned to the cable modem, the at least one DOCSIS CPE IP address being different from the at least one DOCSIS CM IP address.

209. (Original) The cable modem of claim 206, wherein the cable modem (CM) appears on the RF cable data network to conform to at least one version of a DAVIC (Digital Audio Visual Council) cable modem standard.

210. (Currently Amended) A method of implementing at least one integrated gateway service in a radio frequency (RF) cable network device, the method comprising the steps performed in the RF cable network device of:

providing at least one RF cable interface that is attachable to at least one RF cable, the at least one RF cable being at least part of an RF cable data network, the at least one RF cable

at least providing downstream communications in the RF cable data network, the RF cable data network providing bi-directional data connectivity between the RF cable network device at a customer premise and a cable modem termination device;

providing at least one customer premise data interface that is electromagnetically connectable to at least one customer premise data communications medium, the at least one customer premise data communications medium further being electromagnetically connectable to at least one first customer premise equipment (CPE) data device, the at least one RF cable interface and the at least one customer premise data interface capable of:

providing at least part of a communications facility that can be used in a conveyance of data between the at least one first CPE data device and the at least one RF cable interface;

determining whether the first CPE data device comprises an allowed medium access control (MAC) address,

in response to determining that the first CPE data device does not comprise an allowed MAC address, determining whether MAC address configuration is enabled, and  
in response to determining that MAC address configuration is enabled,  
configuring the MAC address associated with the first CPE data device to be set to an allowed MAC address;

storing information identifying at least one management IP address, the at least one management IP address being assigned to the RF cable network device and used to manage the RF cable network device;

maintaining information that provides a forward direction mapping between first upstream data and second upstream data, the first upstream data being received on the at least one customer premise data interface and being received from the at least one first CPE data device, the second upstream data being transmitted into the RF cable data network and being transmitted by the RF cable network device;

maintaining information that provides a reverse direction mapping between first downstream data and second downstream data, the first downstream data being received on the at least one RF cable interface and being received from the RF cable data network, the second downstream data being transmitted on the at least one customer premise data interface and being transmitted by the RF cable network device;

receiving at least one first medium access control (MAC) frame that is at least part of the first upstream data;

forming at least one first IP datagram at least based upon the at least one first MAC frame, at least based upon the at least one IP address, and at least based upon the forward direction mapping, the at least one first IP datagram comprising a source IP address field, the at least one IP address being placed into the source IP address field of the at least one first IP datagram;

transmitting the at least one first IP datagram that is at least part of the second upstream data;

receiving at least one second IP datagram that is at least part of the first downstream data, the at least one second IP datagram comprising a destination IP address field that contains the at least one IP address;

forming at least one second medium access control (MAC) frame at least based upon the at least one second IP datagram, at least based upon the at least one IP address, and at least based upon the reverse direction mapping;

transmitting the at least one second MAC frame that is at least part of the second downstream data; and

determining security and control settings, and if the determination indicates a need for elevated security, translating an IP address in one of the packets that is destined for the at least one CPE data device to a NAT process IP address such that the NAT process IP address has a subnet different than the management IP address.

211. (Original) The method of claim 210, wherein the RF cable data network further comprises at least one telco return path that at least provides upstream communications in the RF cable data network.

212. (Original) The method of claim 210, wherein the at least one first MAC frame comprises a third IP datagram, wherein the at least one second MAC frame comprises a fourth IP datagram, and wherein the method of implementing at least one integrated gateway service is used in performing network address translation (NAT), NAT being a gateway service that translates information in IP datagrams.

213. (Original) The method of claim 212, wherein the logic configured to perform NAT performs at least one type of NAT selected from the group consisting of: traditional NAT, basic NAT, network address-port translation (NAPT), bi-directional NAT, and twice NAT.

214. (Original) The method of claim 210, wherein the method of implementing at least one integrated gateway service is used in performing at least one type of service that is selected from the group consisting of: firewall and proxy.

215. (Original) The method of claim 210, wherein the method of implementing at least one integrated gateway service is used in performing at least one type of service that is selected from the group consisting of: tunneling and virtual private networking (VPN).

216-235. (Cancelled)

236. (Previously Presented) The RF cable network device of claim 1, wherein the first address is assigned by a cable modem termination system (CMTS) which conforms to a DOCSIS (Data-Over-Cable Service Interface Specification) standard.

237. (Previously Presented) The RF cable network device of claim 1, wherein the second address is a global public IP address.

238. (Previously Presented) The RF cable network device of claim 1, wherein the second address is a private IP address.

239. (Previously Presented) The RF cable network device of claim 1, further comprising:

logic configured to store the second IP address in association with the NAT logic.

240. (Previously Presented) The RF cable network device of claim 1, further comprising:

a second customer premise data interface that is electromagnetically connectable to a second CPE data device,

wherein the NAT logic is further configured to translate an IP address in one of the packets destined for the second CPE data device to a third IP address having a subnet different than the first IP address; and

wherein the forwarding logic is further configured to forward packets containing IP datagrams destined for the second CPE data device between the RF cable network and the second CPE data device.

241. (Previously Presented) The RF cable network device of claim 1, further comprising:

a second customer premise data interface that is electromagnetically connectable to a second CPE data device,

wherein the NAT logic is further configured not to translate an IP address in one of the packets destined for the second CPE data device; and

wherein the forwarding logic is further configured to forward packets containing IP datagrams destined for the second CPE data device between the RF cable network and the second CPE data device.

242. (Previously Presented) The method of claim 55, wherein the first address is assigned by a cable modem termination system (CMTS) which conforms to a DOCSIS (Data-Over-Cable Service Interface Specification) standard.

243. (Previously Presented) The method of claim 55, wherein the second address is a global public IP address.

244. (Previously Presented) The method of claim 55, wherein the second address is a private IP address.

245. (Previously Presented) The method of claim 55, further comprising: storing the second IP address in association with a NAT process.

246. (Previously Presented) The method of claim 55, further comprising: providing a second customer premise data interface that is electromagnetically connectable to a second CPE data device; translating an IP address in one of the packets destined for the second CPE data device to a third IP address having a subnet different than the first IP address; and forwarding packets containing IP datagrams destined for the second CPE data device between the RF cable network and the second CPE data device.

247. (Previously Presented) The method of claim 55, further comprising: providing a second customer premise data interface that is electromagnetically connectable to a second CPE data device;

bypassing translation of an IP address in one of the packets destined for the second CPE data device; and

forwarding packets containing IP datagrams destined for the second CPE data device between the RF cable network and the second CPE data device..

248. (Previously Presented) The RF cable network device of claim 1, further comprising:

memory for storing a MAC address associated with the at least one first CPE data device;

network address translation (NAT) logic configured to translate an IP address in one of the packets that is destined for the first CPE data device such that the one of the packets appears to be sent from the stored MAC address associated with the first CPE address when the one of the packets is communicated across the at least one RF cable interface.

249. (Previously Presented) The method of claim 55, further comprising:

storing a MAC address associated with the first CPE data device;

translating an IP address in one of the packets that is destined for the at least one first CPE data device such that the one of the packets appears to be sent from the stored MAC address associated with the at least one first CPE address when the one of the packets is communicated across the at least one RF cable interface.

250. (Previously Presented) The RF cable network device of claim 72, further comprising:

memory for storing a MAC address associated with the first CPE data device;

network address translation (NAT) logic configured to translate an IP address in one of the packets that is destined for the at least one first CPE data device such that the one of the packets appears to be sent from the stored MAC address associated with the at least one first

CPE address when the one of the packets is communicated across the at least one RF cable interface.

251. (Previously Presented) The method of claim 210, further comprising:  
storing a MAC address associated with the first CPE data device;  
translating an IP address in one of the packets that is destined for the at least one first CPE data device such that the one of the packets appears to be sent from the stored MAC address associated with the at least one first CPE address when the one of the packets is communicated across the at least one RF cable interface.

252. (Currently Amended) A radio frequency (RF) cable network device that implements at least one gateway service, the device comprising:  
an RF cable interface attachable to an RF cable data network, the RF cable data network providing bi-directional data connectivity between the RF cable network device and a cable modem termination device;  
logic configured to manage the RF cable interface through a management IP address assigned by the RF cable data network to the RF cable network device;  
a customer premise data interface electromagnetically connectable to a customer premise equipment (CPE) data device, the RF cable interface and the customer premise data interface capable of:  
providing at least part of a communications facility that can be used in a conveyance of data between the CPE data device and the RF cable interface,  
determining whether the first CPE data device comprises an allowed medium access control (MAC) address,  
in response to determining that the first CPE data device does not comprise an allowed MAC address, determining whether MAC address configuration is enabled, and

in response to determining that MAC address configuration is enabled,  
configuring the MAC address associated with the first CPE data device to be set to an  
allowed MAC address;  
memory for storing a the MAC address associated with the CPE data device;  
network address translation (NAT) logic configured to determine security and control  
settings, and if the determination indicates a need for elevated security, translate an IP address  
in one of the packets that is destined for the first CPE data device such that the one of the  
packets appears to be sent from the stored MAC address associated with the first CPE address  
when the one of the packets is communicated across the at least one RF cable interface; and  
forwarding logic configured to forward packets containing IP datagrams destined for the  
CPE data device between the RF cable data network and the customer premise equipment  
(CPE) data.

253. (Currently Amended) A method of implementing at least one gateway service in  
a radio frequency (RF) cable network device, the method comprising the steps performed in the  
RF cable network device of:

providing a RF cable interface attachable to an RF cable data network, the RF cable  
data network providing bi-directional data connectivity between the RF cable network device  
and a cable modem termination device;

storing a management IP address assigned by the RF cable data network to the RF  
cable network device;

providing a customer premise data interface electromagnetically connectable to a  
customer premise equipment (CPE) data device, the RF cable interface and the customer  
premise data interface capable of:

providing at least part of a communications facility that can be used in a  
conveyance of data between the CPE data device and the RF cable interface,

determining whether the first CPE data device comprises an allowed medium access control (MAC) address,

in response to determining that the first CPE data device does not comprise an allowed MAC address, determining whether MAC address configuration is enabled, and

in response to determining that MAC address configuration is enabled,

configuring the MAC address associated with the first CPE data device to be set to an allowed MAC address;;

storing a the MAC address associated with the CPE data device;

determining security and control settings, and if the determination indicates a need for elevated security, translating an IP address in one of the packets that is destined for the first CPE data device such that the one of the packets appears to be sent from the stored MAC address associated with the first CPE address when the one of the packets is communicated across the at least one RF cable interface; and

forwarding packets containing IP datagrams destined for the CPE data device between the RF cable data network and the customer premise equipment (CPE) data.

254. (Currently Amended) A radio frequency (RF) cable network device that implements at least one integrated gateway service, the device comprising:

an RF cable interface attachable to an RF cable, the RF cable being part of an RF cable data network, the RF cable providing downstream communications in the RF cable data network, the RF cable data network providing bi-directional data connectivity between the RF cable network device at a customer premise and a cable modem termination device;

a customer premise data interface electromagnetically connectable to at least one customer premise data communications medium, the customer premise data communications medium further being electromagnetically connectable to a customer premise equipment (CPE) data device, the RF cable interface and the customer premise data interface capable of:

providing at least part of a communications facility that can be used in a conveyance of data between the CPE data device and the RF cable interface,  
determining whether the first CPE data device comprises an allowed medium access control (MAC) address,  
in response to determining that the first CPE data device does not comprise an allowed MAC address, determining whether MAC address configuration is enabled, and  
in response to determining that MAC address configuration is enabled,  
configuring the MAC address associated with the first CPE data device to be set to an allowed MAC address;  
logic configured to store information identifying at least one management IP address, the at least one management IP address being assigned to the RF cable network device;  
logic configured to maintain information that provides a forward direction mapping between first upstream data and second upstream data, the first upstream data being received on the customer premise data interface and being received from the CPE data device, the second upstream data being transmitted into the RF cable data network and being transmitted by the RF cable network device;  
logic configured to maintain information that provides a reverse direction mapping between first downstream data and second downstream data, the first downstream data being received on the RF cable interface and being received from the RF cable data network, the second downstream data being transmitted on the customer premise data interface and being transmitted by the RF cable network device;  
logic configured to receive a first medium access control (MAC) frame that is part of the first upstream data;  
logic configured to form a first IP datagram based upon the first MAC frame, based upon the IP address, and based upon the forward direction mapping, the first IP datagram comprising

a source IP address field, the IP address being placed into the source IP address field of the first IP datagram;

logic configured to transmit the first IP datagram that is part of the second upstream data;

logic configured to receive a second IP datagram that is part of the first downstream data, the second IP datagram comprising a destination IP address field that contains the IP address;

logic configured to form a second medium access control (MAC) frame based upon the second IP datagram, based upon the IP address, and based upon the reverse direction mapping;

logic configured to transmit the second MAC frame that is part of the second downstream data; and

memory for storing a the MAC address associated with the CPE data device; and  
network address translation (NAT) logic configured to determine security and control settings, and if the determination indicates a need for elevated security, translate an IP address in one of the packets that is destined for the first CPE data device such that the one of the packets appears to be sent from the stored MAC address associated with the first CPE address when the one of the packets is communicated across the at least one RF cable interface.

255. (Currently Amended) A method of implementing at least one gateway service in a radio frequency (RF) cable network device, the method comprising the steps performed in the RF cable network device of:

providing an RF cable interface attachable to an RF cable, the RF cable being part of an RF cable data network, the RF cable providing downstream communications in the RF cable data network, the RF cable data network providing bi-directional data connectivity between the RF cable network device at a customer premise and a cable modem termination device;

providing a customer premise data interface electromagnetically connectable to at least one customer premise data communications medium, the customer premise data communications medium further being electromagnetically connectable to a customer premise equipment (CPE) data device, the RF cable interface and the customer premise data interface capable of:

providing at least part of a communications facility that can be used in a conveyance of data between the CPE data device and the RF cable interface,

determining whether the first CPE data device comprises an allowed medium access control (MAC) address,

in response to determining that the first CPE data device does not comprise an allowed MAC address, determining whether MAC address configuration is enabled, and  
in response to determining that MAC address configuration is enabled,

configuring the MAC address associated with the first CPE data device to be set to an allowed MAC address;

storing information identifying at least one management IP address, the at least one management IP address being assigned to the RF cable network device;

maintaining information that provides a forward direction mapping between first upstream data and second upstream data, the first upstream data being received on the customer premise data interface and being received from the CPE data device, the second upstream data being transmitted into the RF cable data network and being transmitted by the RF cable network device;

maintaining information that provides a reverse direction mapping between first downstream data and second downstream data, the first downstream data being received on the RF cable interface and being received from the RF cable data network, the second downstream data being transmitted on the customer premise data interface and being transmitted by the RF cable network device;

receiving a first medium access control (MAC) frame that is part of the first upstream data;

forming a first IP datagram based upon the first MAC frame, based upon the IP address, and based upon the forward direction mapping, the first IP datagram comprising a source IP address field, the IP address being placed into the source IP address field of the first IP datagram;

transmitting the first IP datagram that is part of the second upstream data;

receiving a second IP datagram that is part of the first downstream data, the second IP datagram comprising a destination IP address field that contains the IP address;

forming a second medium access control (MAC) frame based upon the second IP datagram, based upon the IP address, and based upon the reverse direction mapping;

transmitting the second MAC frame that is part of the second downstream data; and

storing a the MAC address associated with the CPE data device; and

determining security and control settings, and if the determination indicates a need for elevated security, translating an IP address in one of the packets that is destined for the first CPE data device such that the one of the packets appears to be sent from the stored MAC address associated with the first CPE address when the one of the packets is communicated across the at least one RF cable interface.